

## WHAT IS CLAIMED:

1. An apparatus for separating particulates from a fluid in a suspension, comprising:  
a housing defining a frusto-conically shaped inner chamber with an inner wall, an inlet and a first outlet communicating with said chamber, and a second outlet; and  
a spinning assembly with a hollow interior mounted in the chamber, said assembly being shaped to define an annular gap with the chamber inner wall, said hollow interior communicating with the second outlet, and said hollow interior communicating with said annular gap for flow of fluid materials from said gap into said interior and out of said second outlet in response to rotation of the spinning assembly.
2. The apparatus of claim 1, wherein said spinning assembly comprises:  
a hollow spindle defining a spindle inlet and a spindle outlet, said spindle outlet communicating with said housing second outlet; and  
a tapered, porous cylindrical wall mounted on said hollow spindle to define said hollow interior, the hollow interior communicating with said hollow spindle through said spindle inlet.
3. The apparatus of claim 2 wherein said spinning assembly rotates at a speed of about 10,000 r.p.m.
4. The apparatus of claim 2 wherein said spinning assembly rotates at a speed between about 1,000 r.p.m. and about 50,000 r.p.m.
5. The apparatus of claim 1 wherein the annular gap is substantially constant along its length.
6. The apparatus of claim 1 wherein the annular gap is of variable thickness.
7. The apparatus of claim 2 wherein the tapered porous cylindrical wall has a pore size of between about 1 and about 200 microns.
8. The apparatus of claim 7 wherein the pore size is about 1–100 microns.
9. The apparatus of claim 7 wherein the pore size is about 50 microns.

10. The apparatus of claim 1 wherein said annular gap and said porous wall pores are sized for separating a suspension of municipal sewage sludge.
11. The apparatus of claim 1 wherein said cylindrical inner wall is tapered at an angle of from about 1° to about 10°.
12. The apparatus of claim 1 wherein the angle is between about 2° and about 2.5°.
13. The apparatus of claim 1 wherein there is a pressure differential between the inlet and the annular gap.
14. The apparatus of claim 13 wherein the pressure differential is about 3 – 4 p.s.i.
15. The apparatus of claim 1 wherein the inlet and annular gap are configured and dimensioned for a flow rate between about 1 and about 20 gallons per minute.
16. The apparatus of claim 15 wherein the flow rate is about 10 gallons per minute.
17. An apparatus for separating particulates from a fluid in a suspension, comprising:
  - a casing having an inner surface;
  - a tapered cylinder disposed in the casing, having a longitudinal axis, an angle of taper, and having a porous wall with an outer surface configured to form an annular gap between the outer surface and the inner surface of said casing, said tapered cylinder being concentrically mounted on a hollow spindle so that it can be caused to rotate about its longitudinal axis;
  - an inlet for introducing the suspension into the annular gap at a flow rate;
  - a first outlet in the casing for permitting separated particulates to be released from the device, upon rotation of the cylinder; and
  - a second outlet in the hollow spindle for permitting fluid that passes through the porous wall to be drained from the device, upon rotation of the cylinder.